UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
WACO DIVISION

Health Discovery Corporation,	
Plaintiff,	Civil Action No. 6:22-cv-356
v.	
Intel Corporation,	**JURY TRIAL DEMANDED**
Defendant.	

INTEL CORPORATION'S MOTION FOR JUDGMENT ON THE PLEADINGS

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I.   INTRODUCTION

Over seven months ago, the Court granted Intel Corporation's ("Intel") motion to dismiss Health Discovery Corporation's ("HDC") Original Complaint because the asserted claims are directed to the abstract idea of using mathematical algorithms to analyze and report data, and they lack an inventive concept.

HDC's second Complaint does not—and cannot—change this result.   Claims to mathematical algorithms, without more, are categorically excluded from patent protection. Regardless of how HDC dresses them up in its second Complaint, the Court has explained that HDC's claims are directed to nothing more than algorithms HDC calls support vector machines ("SVM") with recursive feature elimination ("RFE"). Dkt. 17-9 at 22–23 (Answer Ex. I) ("Order") ("[T]he claims are directed to the abstract mathematical concept of SVM-RFE."). The claims recite a generic "computer-implemented method" covering only the abstract algorithms themselves, not any improvement in the technological functioning of a computer. *See id.* at 8, 21–23. And there is no inventive concept to speak of—even accepting for purposes of this Motion that SVM-RFE is an important invention with broad applications, the abstract idea itself cannot supply the inventive concept needed to transform the claims into patent-eligible subject matter. *See id.* at 23–24.

Because HDC's second Complaint makes only legally irrelevant changes from HDC's Original Complaint regarding 35 U.S.C. § 101, the Court should again grant Intel's Motion, hold the claims invalid under § 101, and issue a final judgment in Intel's favor.

II.   BACKGROUND

A.   *The asserted patents*

The asserted patents[1] are all directed to a mathematical algorithm known as SVM-RFE. *See, e.g.*, Dkt. 17-4, ¶ 28 (Answer Ex. D) ("Original Complaint"); Order at 22; Dkt. 1-3 at 14:62– 65, 15:4–8, 29:12–62, 31:14–19, 72:60–62 (Complaint Ex. A) ("'188 pat."); *see also* Patent Owner Preliminary Response at 8, *Intel Corp. v. Health Discovery Corp.*, No. IPR2021-00550 (P.T.A.B. June 8, 2021), Paper No. 7 ("SVM-RFE is an efficient algorithm") (citation and internal quotation omitted) ("POPR").[2]   The patents describe "enhancing knowledge that may be discovered from data" by using a modified SVM, namely SVM-RFE. '188 pat. at 14:59-62. According to HDC, "SVM-RFE is a process for improving an SVM." Dkt. 1, ¶ 37 ("Complaint").

Each of the SVM and the RFE components are themselves prior-art mathematical algorithms. SVMs are mathematical algorithms that allow a computer to analyze large datasets to identify patterns and classify data based on its features. '188 pat. at 4:5–11, 24:51–55. A researcher feeds training data into the SVM, the SVM analyzes the data to find patterns (a process sometimes called "training"), and then the SVM may apply those patterns to new ("live") data to classify that data. *Id.* at 5:50–51, 6:5–6, 6:40–51. The results of an SVM analysis can include, for

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[1] For purposes of this Motion only, Intel accepts as true HDC's allegations in the Complaint and statements in the patent specification.

[2] The Court may take judicial notice of the patent's intrinsic record, including filings made in an inter partes review ("IPR"), when deciding a Federal Rule of Civil Procedure ("Rule") 12 motion. *See, e.g.*, *Walker v. Beaumont Indep. Sch. Dist.*, 938 F.3d 724, 734 (5th Cir. 2019) (courts may consider judicially noticed facts in deciding a Rule 12(c) motion); *Grecia Est. Holdings LLC v. Meta Platforms, Inc.*, No. 21-CV-00677, 2022 WL 2019296, at *6 (W.D. Tex. June 6, 2022) (taking judicial notice of communications with the Patent Trial and Appeal Board ("PTAB") during IPR proceedings); *Standard Havens Prods., Inc. v. Gencor Indus., Inc.*, 897 F.2d 511, 514 n.3 (Fed. Cir. 1990) (taking judicial notice of a Patent Office action); *Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1359–60 (Fed. Cir. 2017) (finding that "statements made by a patent owner during an IPR proceeding" were part of the patent's intrinsic record).

example, a prediction about whether a patient's genome makes her susceptible to a particular type

of cancer. *See id.* at 5:19–31. An SVM can process complex, high-dimensionality data (e.g., data

from multiple patients, each with thousands of genes), but can sometimes "overfit" the results of

such data. *Id.* at 4:12–20, 25:29–43. Overfitting means that the algorithm accurately classifies

training data, but it performs poorly when presented with live data. *Id.* at 25:29–43.

RFE is "an application of SVM," i.e., another mathematical technique, that determines

which of the dataset's features are most important for the SVM to consider when generating

patterns and data classifications. Complaint, ¶ 29. "RFE methods comprise iteratively 1) training

the classifier, 2) computing the ranking criterion for all features, and 3) removing the feature

having the smallest ranking criterion." '188 pat. at 27:62–66. RFE is intended to result in a subset

of the most important (i.e., most predictive) features, which can then be fed into the SVM algorithm

to aid with pattern recognition. *Id.* at 53:48–66.

The combination of the two mathematical techniques yields an SVM-RFE algorithm,

which allegedly helps correct for SVMs' overfitting problem by identifying the features that most

heavily influence the data classification results. *See, e.g.*, *id.* at Fig. 2, 29:12–58, 32:22–27. SVM-

RFE generally operates by: (1) executing the SVM algorithm on a dataset to yield weight values

for each feature in the set; (2) ranking those features according to feature-weight values; (3)

eliminating the features that contributed the least to the result (i.e., the features with the lowest

rank); and (4) repeating the process until an optimal feature set is obtained. *Id.* at Fig. 2, 15:14–

17:4, 24:66–25:2, 28:14–16; 29:12–58.

The patents describe using an SVM-RFE algorithm on various kinds of data. One example

involves using the algorithm to analyze patients' genomes to identify the genes most closely

associated with the occurrence of colon cancer. *Id.* at 34:9–50:67. As compared to other

techniques, the SVM-RFE algorithm allegedly "provides the best results down to 4 genes." *Id.* at 49:31–35. The SVM-RFE technique also purportedly eliminates noise in the results, such as "tissue composition related genes" rather than cancer-related genes, improving the quality of the resulting data. *Id.* at 49:31–38.

B.   *Procedural history*

HDC filed a complaint against Intel on July 23, 2020, in case no. 6:20-cv-00666-ADA, alleging infringement of U.S. Patent Nos. 7,117,188; 7,542,959; 8,095,483; and 10,402,685. Original Complaint, ¶¶ 15–18. In the Original Complaint, HDC described the asserted claims as directed to using SVM "to identify relevant patterns in datasets, and more specifically, to a selection of features within the datasets that best enable classification of the data (*e.g.*, Recursive Feature Elimination)." *Id.*, ¶ 27. HDC described SVM as a "mathematical algorithm[]," and similarly described SVM-RFE as an "application" of SVM. *Id.*, ¶¶ 27–29.

Intel moved to dismiss the Original Complaint, in relevant part, because the claims are not patent-eligible under § 101. Dkt. 17-5, ¶¶ 15–18 (Answer Ex. E) ("Intel's 12(b)(6) Motion"). After construing the claims at a Markman hearing, the Court held oral argument on Intel's 12(b)(6) Motion. The Court then issued a detailed written opinion granting Intel's 12(b)(6) Motion because, accepting HDC's allegations as true, the pleadings demonstrated that the asserted claims are directed to an abstract idea with no inventive concept to salvage them. Order at 1.

Step One. First, the Court agreed with the parties that claim 1 of the '188 patent is representative for purposes of the eligibility analysis. *Id.* at 7–8. The Court then thoroughly analyzed the eligibility case law. *Id.* at 8–20. The Court ultimately determined that the claims are directed to SVM-RFE, which is an abstract concept because it is nothing more than an improved "mathematical technique." *Id.* at 20–21. The Court based its decision in large part on the strong similarities between HDC's claims and the ineligible claims in *In re Board of Trustees of Leland*

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Stanford Junior University, 991 F.3d 1245, 1251 (Fed. Cir. 2021) ("*Stanford II*"), and *SAP America, Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018). Order at 20 ("*Stanford II* is this case's North Star, with *SAP* nearby."). In those cases, the at-issue claims described nothing more than an improvement or enhancement of a mathematical technique. *Id.* at 20–21. Similarly, the Court found that HDC's claims were directed to a "mathematical technique" that "merely produce[s] data with improved quality relative to that produced by conventional mathematical methods." *Id.* at 21 (citing '188 pat. at 29:12–58, 24:51–60, 48:66–11, 49:46–58, 44:31–35).

The Court also rejected HDC's argument that its claims were directed to an improvement in computer functionality. *Id.* at 21–22. HDC proffered examples from the specification generally describing *how RFE functions*, not any improvement over conventional prior-art methods. *Id.* The only potentially relevant allegation HDC identified in briefing is the specification's statement that "[t]o increase computational speed, RFE is preferably [sic] implemented by training multiple classifiers on Subsets of features of decreasing size." *Id.* (citing '188 pat. at 30:3–6). Putting HDC's selected quotation in the context of the full specification passage, however, the Court explained that the specification was not discussing an improvement in computer functionality—it was explaining a response to a *disadvantage* of RFE, which "'is computationally expensive when compared against' conventional methods." *Id.* (quoting '188 pat. at 29:63–64). Thus, HDC's selected quotation explains that applying RFE to SVM is merely an improvement in a mathematical algorithm, not an improvement in any computer functionality. *See id.* (citing '188 pat. at 30:3–6, 29:63–64). The Court, notably, did not discern a disclosure of any improvement in computer speed or efficiency. *See id.*

The Court further noted that the combination of two abstract ideas—SVM and RFE—does not make the combination non-abstract. Order at 22–23. Cognizant to avoid defining the claims

at too high a level of abstraction, the Court was nonetheless compelled to find the claims directed

to SVM-RFE—HDC had "conceded this characterization," and the patent itself provides for no

other conclusion. *Id.* (citing Original Complaint, ¶¶ 28–29); *see also* Dkt. 17-6 at 1 (Answer

Ex. F).

Step Two. The Court then held that the claims lacked an inventive concept. Although it

recognized that SVM-RFE may be an "important" invention that yields improvements in data

quality, that was not enough to provide an inventive concept beyond the abstract idea itself. Order

at 23–24. The Court recognized the clear mandate from the case law that even "groundbreaking"

advances are not patent eligible if they recite no more than an abstract idea. *Id.*

The Court noted that in some cases, alleging concrete examples of "innovation in the non-

abstract realm" may provide a sufficient inventive concept. *Id.* at 24. But after examining the

patent and allegations, the Court stated it "cannot discern any such allegations capable of"

conferring patent-eligibility. *Id.* The Court was clear that merely limiting the invention to a

particular field of use or providing specifics for how the mathematical algorithm worked could not

save HDC's claims. *Id.*

Finding both steps of the *Alice* inquiry met, the Court dismissed the Original Complaint

without prejudice. *Id.* at 24–25. HDC filed a notice of appeal to the Federal Circuit but moved to

voluntarily dismiss the appeal one day before its opening brief was due. HDC then filed a second

case with a second, but admittedly substantially similar, complaint. *See generally*, Complaint; *see*

also Ex. 1 at 4:18 –5:1, 17:23 –18:2, 18:7 –17 (July 8, 2022 Hr'g Tr.).[3]

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[3] The Court can take judicial notice of the transcript from the parties' July 8, 2022 hearing before
Magistrate Judge Gilliland. *See, e.g.*, *United States v. Khalid*, 41 F.3d 661, at *1 (5th Cir. 1994);
Gulf Coast Indus. Workers Union v. Exxon Co., U.S.A., 991 F.2d 244, 246 n.1 (5th Cir. 1993);
FED. R. EVID. 201.

HDC's second Complaint added no legally relevant substance, only conclusory assertions of patent eligibility, which fall into two buckets. *First*, HDC attempted to add allegations showing that the claims are directed to an improvement in technology. But as shown below, these are simply additional descriptions of the SVM-RFE functionality operating on a generic computer— the same argument that the Court had already rejected. Complaint, ¶¶ 37–44. Second, HDC attempted to plead concrete (but unclaimed) examples of "innovation in the non-abstract realm" by adding descriptions of exemplary applications of SVM-RFE in various fields of use. *Id.*, ¶¶ 49– 53. But again, these are no different than the examples the Court roundly rejected because merely applying the abstract SVM-RFE concept to various types of information cannot confer eligibility. Order at 24.

III.   RELEVANT LAW

A.   *Judgment on the pleadings under Rule 12(c)*

Pursuant to Rule 12(c), "[a]fter the pleadings are closed—but early enough not to delay trial—a party may move for judgment on the pleadings." A motion for judgment on the pleadings "is designed to dispose of cases where the material facts are not in dispute and a judgment on the merits can be rendered by looking to the substance of the pleadings and any judicially noticed facts." *Great Plains Tr. Co. v. Morgan Stanley Dean Witter & Co.*, 313 F.3d 305, 312 (5th Cir. 2002) (citation omitted). While the relief sought is different, a Rule 12(c) motion is decided under the same standard as a motion to dismiss under Rule 12(b)(6). *Doe v. MySpace, Inc.*, 528 F.3d 413, 418 (5th Cir. 2008). That is, the Court must decide whether the facts as pleaded, when viewed in the light most favorable to the plaintiff, state a claim for relief that is plausible on its face. *Hughes v. Tobacco Inst., Inc.*, 278 F.3d 417, 420 (5th Cir. 2001); *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009); *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007). The Rule 12(c) "inquiry focuses on the allegations in the pleadings," not whether the "plaintiff actually has sufficient

evidence to succeed on the merits." *Ackerson v. Bean Dredging LLC*, 589 F.3d 196, 209 (5th Cir. 2009) (citation and internal quotation marks omitted). Conclusory or contradictory allegations will not defeat a Rule 12(c) motion. *Great Plains*, 313 F.3d at 313; *Bosarge v. Miss. Bureau of Narcotics*, 796 F.3d 435, 440–41 (5th Cir. 2015).

The Court can determine patent eligibility on a Rule 12(c) motion if "the undisputed facts, considered under the standards required by that Rule, require a holding of ineligibility." *SAP*, 898 F.3d at 1166; *see also Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1342 n.4 (Fed. Cir. 2018) ("[W]here, as here, there are no disputed facts material to the issue of patent eligibility, the district court's resolution of the inventive concept inquiry is proper."); *cf. Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121, 1125 (Fed. Cir. 2018) (same in Rule 12(b)(6) context). A patentee cannot avoid an adverse judgment on the pleadings by relying on only conclusory or generalized statements in the complaint. *See SAP*, 898 F.3d at 1166; *see also Cisco Sys., Inc. v. Uniloc 2017 LLC*, 813 F. App'x 495, 498–99 (Fed. Cir. 2020).

B.   Patent eligibility under § 101

The Supreme Court has prescribed a two-step framework for determining when a claim is ineligible for patenting. *See Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208 (2014). First, the Court examines the claims' "character as a whole" to determine whether it is "directed to" an abstract idea. *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015). If so, the Court then examines whether the claim contains "significantly more" than that abstract idea. *Alice*, 573 U.S. at 217 (citation omitted). "[I]nsignificant extra-solution activity," such as generic computer implementation, field-of-use restrictions, or presenting results, are legally insufficient. *Data Engine Techs. LLC v. Google LLC*, 906 F.3d 999, 1010, 1012 (Fed. Cir. 2018); *see also Alice*, 573 U.S. at 222; *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016). Rather, "significantly more" requires that the additional limitations "'transform

the nature of the claim' into a patent-eligible application" of the underlying abstract idea. *Alice*,

573 U.S. at 217 (citation omitted).

IV.   THE ASSERTED CLAIMS ARE DIRECTED TO INELIGIBLE SUBJECT MATTER

As the Court already held, each asserted claim is directed to the abstract idea of SVM-RFE,

a mathematical algorithm, with no improvement in technological functionality. Order at 21–22.

Further, there is nothing in the claims beyond the abstract mathematical algorithms to provide an

inventive concept. *Id*. at 23–24. Therefore, the claims are ineligible under § 101. *Id*. at 25.

Nothing in HDC's second Complaint changes the Court's determination that the asserted

claims are patent ineligible. HDC simply adds (1) additional descriptions of the SVM-RFE

algorithm operating on a generic computer, and (2) unclaimed examples of researchers

implementing SVM-RFE in various fields of use. Neither confers eligibility. Therefore, the Court

should again grant Intel's Motion, find HDC's claims invalid under § 101, and enter a final

judgment in Intel's favor.

A.   *Step 1: The claims are directed to the abstract idea of using SVM-RFE to analyze and report data*

1.   *The claims are directed to SVM-RFE, a mathematical algorithm*

The parties agree (and the Court previously held) that claim 1 of the '188 patent is

representative. Complaint, ¶ 30; Order at 7–8. Namely, each asserted claim "encapsulates SVM-

RFE and recites little, if anything, more than that." Order at 7–8. Thus, the Court need only

analyze claim 1 of the '188 patent for purposes of this Motion. *See, e.g.*, *Content Extraction &*

Transmission LLC v. Wells Fargo Bank, N.A., 776 F.3d 1343, 1348 (Fed. Cir. 2014).

The claims are directed to the abstract concept of SVM-RFE, which the parties agree is a

mathematical algorithm. *See, e.g.*, Original Complaint, ¶ 28; Order at 22; POPR at 8; *see also,*

e.g., '188 pat. at Fig. 2, 29:12–58. Claim 1 of the '188 patent, for example, recites a method "for

identifying patterns in data." '188 pat. at 75:34–56. That method involves inputting a training

data set into an SVM, determining and optimizing weights for each feature of the data, ranking

features based on weights, removing the smallest-ranked feature, and repeating the process until a

subset of features remains. *Id.* Once the subset of features has been obtained, the method

concludes by inputting a new data set into the SVM and analyzing it based on the subset of features.

Id.

Thus, this claim language simply describes the steps of the SVM-RFE algorithm. *See, e.g.*,

id. at Fig. 2, 29:12–58. As the Court explained, the claimed algorithm is "a purportedly novel but

nevertheless mathematical technique." Order at 21 (citing '188 pat. at 29:12–58). The Court went

on to state that to the extent the claims even capture purported improvements gained through use

of SVM-RFE, "the claims here merely produce data with improved quality relative to that

produced by conventional mathematical methods." *Id.* (citing '188 pat. at 24:51–60; 48:66–11;

49:46–58; 44:31–35).

Although HDC appears to have scrubbed the phrase "mathematical algorithm" from its

second Complaint, that omission does not change the character of the claims or HDC's repeated

admissions that the claims are directed to a mathematical algorithm. *See* Dkt. 17-11, ¶ 28 (Answer

Ex. K) (deleting "mathematical algorithms"); *see also, e.g.*, Original Complaint, ¶ 28; POPR at 8.

HDC's Complaint repeatedly refers to its "SVM-RFE patents" and calls SVM-RFE "an application

of SVM." *E.g.*, Complaint, ¶¶ 22, 29, 57, 77, 100, 101, 114, 126, 137, 154, 175; *see* Order at 22.

In the original case, HDC even agreed to construe SVM to mean "a supervised mathematical

learning algorithm …." Dkt. 17-7 at 2 (Answer Ex. G).

Regardless, HDC's transparent deletion of "mathematical algorithm" cannot erase the fact

that the patent describes the operation of SVM-RFE entirely in terms of a mathematical algorithm

that (1) executes the SVM algorithm on a dataset to generate and rank weighted values for each feature in the set; (2) eliminates the features with the smallest ranking; and (3) repeats the process until an optimal feature set is obtained. *E.g.*, '188 pat. at Fig. 2, 15:14–17:4, 24:66–25:28, 28:14–29; 29:12–58; 28:14–16. For example, the specification declares that "the present invention is directed to methods, systems, and devices for knowledge discovery from data." *Id.* at 9:8–10. It explains that an SVM "maps input vectors into high dimensional feature space through [a] non-linear mapping function … to determine things such as class separation." *Id.* at 4:5–11. The specification notes that SVMs were originally developed and described in a paper titled, "A training algorithm for optimal margin classifiers." *Id.* at 15:4–8. It explicitly states that "[p]referred methods comprise application of state-of-the art classification algorithms, SVMs," and uses "a variant of the soft-margin algorithm" to train the SVM. *Id.* at 24:51–55, 28:38–43.

The specification similarly describes RFE as an algorithm for "iteratively 1) training the classifier, 2) computing the ranking criterion for all features, and 3) removing the feature having the smallest ranking criterion." *Id.* at 27:62–66. The specification even walks through the specific mathematical equations used in an SVM-RFE analysis. *Id.* at 29:12–58. Finally, the specification compares the data obtained from SVM-RFE to the data obtained from prior methods—particularly a method by Golub—and touts the improved quality of the SVM-RFE data. *See, e.g.*, *id.* at 38:29–39:14.

2. *Mathematical algorithms like SVM-RFE are categorically excluded from patenting because they are abstract*

Claims to mathematical algorithms like SVM-RFE, without more, are abstract. In *Stanford II*, for example, the Federal Circuit held that claims to "a mathematical technique for predicting genetic information were directed to 'an enhancement to the abstract mathematical calculation.'" Order at 11–13 (quoting 991 F.3d at 1250–51). The patent described "computerized statistical

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methods for determining haplotype phase" that used a modification of an existing statistical analysis to allegedly improve the accuracy of the predicted haplotype phase. *Stanford II*, 991 F.3d at 1246–47. The Federal Circuit held that the claims were directed to the abstract idea of using "mathematical calculations and statistical modeling." *Id.* at 1250. It declined to find that the increased predictive accuracy was an improvement in a technological process because it was "merely an enhancement to the abstract mathematical calculation of haplotype phase itself." *Id.* at 1251.

Likewise, in *SAP*, the Federal Circuit held that claims to systems and methods for performing "certain statistical analyses of investment information" were abstract. 898 F.3d at 1163; *see* Order at 13–14. Rather than using conventional statistical methods that relied on "normal or Gaussian distribution," the patentees used methods that did not assume a normal distribution. *SAP*, 898 F.3d at 1163–64. One such method was a "bootstrap method, which estimates the distribution of data … by repeated sampling of the data." *Id.* at 1164. The claims were abstract because they were directed to "selecting certain information, analyzing it using mathematical techniques, and reporting or displaying the results of the analysis." *Id.* at 1167. Unlike patent-eligible claims, the *SAP* claims were merely an "improvement in a mathematical technique," not "a physical-realm improvement." *Id.* at 1167–68.

Stanford II and *SAP* were the Court's "North Star" because HDC's claims here are so similar to those ineligible claims, which recite only "improving a mathematical analysis." Order at 20. In *Stanford II*, the claims used a particular statistical model to improve haplotype predictions. In *SAP*, the claims used a modified probability distribution informed by resampling to provide improved investment advice. Both were merely directed to the "production of improved data relative to conventional mathematical methods." Order at 21; *see also SAP*, 898 F.3d at 1168

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(claims were merely "improvement in wholly abstract ideas—the selection and mathematical analysis of information"); *Stanford II*, 991 F.3d at 1251 ("[I]t is merely an enhancement to the abstract mathematical calculation of haplotype phase itself."). HDC's claims are likewise nothing more than a "mathematical technique" that "merely produce[s] data with improved quality relative to that produced by conventional mathematical models." Order at 21. As such, they are abstract at *Alice* step 1. *Id.*

> 3.   *Unlike CardioNet and Koninklijke, HDC's claims recite generic computers to implement the abstract idea, not an improvement in technology*

Likewise, the Court properly distinguished HDC's claims from patent-eligible claims to improvements in technological functioning like those in *CardioNet, LLC v. InfoBionic, Inc.*, 955 F.3d 1358 (Fed. Cir. 2020), and *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143 (Fed. Cir. 2019). Unlike *CardioNet*, *Koninklijke*, or other "technological improvement" cases, HDC's claims lack any technological improvement in computer functionality (and HDC has not alleged any).

In *CardioNet*, claims to "an improved cardiac monitoring device" were not abstract. 955 F.3d at 1368; Order at 14–16. The claimed device "more accurately detects the occurrence of atrial fibrillation and atrial flutter," including those episodes with "increased clinical significance," while reducing false positives and negatives. 955 F.3d at 1368–69. Thus, the claimed device was an improvement in a technological tool (i.e., a cardiac monitoring device), not merely a generic computer for implementing an abstract idea. *Id.* at 1371.

Similarly, *Koninklijke* involved non-abstract claims to detecting errors in data transmission. 942 F.3d at 1146–47. The claims modified the way conventional systems generated check data by varying the check function over time rather than using a static function that could result in systematic data corruption. *Id.*; *see also* Order at 16–18. Varying the check data function

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was an improvement in a technological process, namely error checking in data transmission. 942 F.3d at 1150–51. Further, the claims captured the specific error-checking implementation described in the specification. *Id.* at 1153.

Nonetheless, in its second Complaint, HDC attempts to root SVM-RFE into that line of cases describing technological improvements. But HDC's conclusory assertions of a non-abstract technological improvement—invoking portions of the specification describing how SVM-RFE works and the data it can provide (Complaint, ¶¶ 37–44)—cannot create patent-eligible claims. In particular, HDC alleges that "SVM is used to classify examples of data (called patterns)," and the algorithm "divides the patterns … based on content of the features" of the data. *Id.*, ¶ 37. Then, the RFE portion of the algorithm "recursively prun[es] away those features that contribute the least to the classification decision," and the result is an algorithm that "can classify a new pattern using a reduced set of features." *Id.* HDC alleges that SVM-RFE "yield[s] a classifier that avoids overfitting" and "efficiently reveals relevant features." *Id.*, ¶ 39.

HDC then posits that, based on these steps, the claims "recite[] a process for *modifying a support vector machine*—a kind of classifier," and do not "merely use[] the support vector machine as a tool to perform or automate a classification function." *Id.*, ¶ 42 (emphasis added). That is, HDC alleges that the addition of RFE to the SVM algorithm creates an "improved" SVM. *Id.*, ¶¶ 42–43; *see also id.*, ¶ 43 ("the [SVM] at step (d) is a different [SVM] than began the process in step (a)"). HDC's Complaint then attempts to distinguish abstract claims by alleging that its claims yield an improved "machine used to analyze the data" that produces "concrete results," not merely "improved" data. *Id.*, ¶ 44. HDC's allegations do nothing to move the eligibility needle. They are just another example of the same allegations HDC made—and the Court rejected—a few months ago. *See* Order at 21–22. For purposes of this Motion, providing HDC every benefit of

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the doubt, Intel will accept that the patents disclose an "improved" SVM tool. But this is simply an improvement in the *SVM-RFE algorithm itself*. Put another way, the allegedly improved "machine" that HDC points to is nothing more than a conventional computer running the SVM-RFE algorithm. HDC even admits that the alleged "improvement is algorithmic in nature." Complaint, ¶ 44.

HDC's characterization of its claims as a "technological improvement" is thus implausible on its face. It directly contradicts the patent, the case law, and the Court's previous analysis discussed above—claims directed to the mere use of a mathematical algorithm to provide improved data are abstract. *See, e.g.*, *Stanford II*, 991 F.3d at 1250; *SAP*, 898 F.3d at 1167–68; *Elec. Power Grp.*, 830 F.3d at 1354; *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015); *see also* Order at 21–22. Further, the fundamental holding of *Alice* is that implementing an abstract idea with a generic computer—exactly what HDC alleges as its "technological improvement"—does not change the abstract nature of that idea. 573 U.S. at 223–24. Finally, even if HDC's allegations *could* change the eligibility analysis, they are conclusory and should be disregarded. *See Simio, LLC v. FlexSim Software Prods., Inc.*, 983 F.3d 1353, 1365 (Fed. Cir. 2020) ("A statement that a feature 'improves the functioning and operations of the computer' is, by itself, conclusory. And the allegations in support of that conclusion just repackage assertions of non-abstractness we've already rejected as a matter of law[.]"). Thus, there is no technological improvement to bring the claims out of the abstract realm.

B.   Step 2: The claims do not recite "significantly more" than SVM-RFE

HDC's claims recite nothing more than conventional techniques to apply the abstract SVM-RFE concept, which is not enough to make them patent-eligible. And as with its Original Complaint, HDC's second Complaint again fails to allege an inventive concept. Order at 23–24.

The abstract idea itself cannot supply the "inventive concept" for Step 2. *Simio*, 983 F.3d at 1364; *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018). "[T]he relevant inquiry is not whether the claimed invention as a whole is unconventional or non-routine," but "whether the claim limitations *other than* the invention's use of the ineligible concept to which it was directed were well-understood, routine and conventional." *BSG*, 899 F.3d at 1290 (emphasis added). Here, beyond the abstract idea of SVM-RFE, the claims simply recite conventional techniques to implement that idea. This is nothing more than "insignificant extra-solution activity." *See, e.g.*, *Data Engine Techs.*, 906 F.3d at 1010, 1012; *Alice*, 573 U.S. at 222; *Elec. Power Grp.*, 830 F.3d at 1353–54.

Claim 1 of the '188 patent recites a "computer-implemented method" covering the SVM-RFE algorithm, but gives no further details about the specifics of that computer. '188 pat. at 75:34. The specification likewise generically describes the implementing computer and even acknowledges that the SVM-RFE analysis can be performed on a conventional, general-purpose prior-art computer. *See, e.g.*, *id.* at 12:64–67 ("Accordingly, an exemplary embodiment of the learning machine for use in conjunction with the present invention may be implemented in a networked computer environment."), 22:15–23:39, 30:1–3 (describing general computer components). Further, HDC has not alleged that the computer using the SVM-RFE algorithm provides the inventive concept. It is abundantly clear that use of a conventional computer to implement an abstract idea does not confer eligibility. *See, e.g.*, *Alice*, 573 U.S. at 222; *Elec. Power Grp.*, 830 F.3d at 1355; *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1095–97 (Fed. Cir. 2016).

Additionally, some claims require a specific type of input data, such as "gene expression data" or "biologic data." *E.g.*, '188 pat., claims 8, 13, 23. But as the Court noted, limiting the

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abstract idea to a particular technological field does not confer eligibility. Order at 24; *see also Stanford II*, 991 F.3d at 1251–52; *SAP*, 898 F.3d at 1169–70; *Data Engine Techs.*, 906 F.3d at 1012; *Elec. Power Grp.*, 830 F.3d at 1355. Finally, some claims require a particular output of the results of the SVM-RFE analysis (e.g., printing or displaying results using a conventional printer or display screen), but simply reporting the results of an abstract process is still abstract. *See, e.g.*, *SAP*, 898 F.3d at 1167; *Elec. Power Grp.*, 830 F.3d at 1355.

HDC's second Complaint provides numerous examples of allegedly innovative but unclaimed uses of SVM-RFE, but these cannot create a factual dispute regarding the presence of an inventive concept. *See* Complaint, ¶¶ 49–53. Even accepting HDC's allegations as true, and even if HDC's examples were at all tied to the claims, they are just more of the same—exemplary implementations of the abstract idea itself, not anything in the *non-abstract realm* to provide an inventive concept. *See* Order at 24. For example, HDC's Complaint describes the use of SVM-RFE to improve "cardiac monitoring" by assessing cardiac pulse features. Complaint, ¶ 49. In another example, HDC alleges that SVM-RFE improved assessments of beef quality by analyzing various traits of the animal from which the beef was produced. *Id.*, ¶ 51. HDC also alleged that SVM-RFE improved "classifications and estimations" of "pre-harvest soybean yield[s]" by analyzing data based on soybean phenotypes. *Id.*, ¶ 53. HDC's other examples allegedly show improvements in the detection of milk rancidity and malicious software, again based on the analysis of various data. *Id.*, ¶¶ 50, 52.

But none of these alleged examples show the use of any "inventive concept" or non-generic computer functionality. Instead, they describe different implementations of the SVM-RFE algorithm and the resulting improvements in data. As discussed above, implementing SVM-RFE on a generic computer and improving data quality cannot confer eligibility. Further, the law is

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clear that restricting an abstract idea to a particular field of use does not render claims patent eligible. *See Stanford II*, 991 F.3d at 1251–52; *SAP*, 898 F.3d at 1169–70; *Data Engine Techs.*, 906 F.3d at 1012; *Elec. Power Grp.*, 830 F.3d at 1355. In fact, many of HDC's alleged examples are indistinct from field-of-use limitations that the Court already determined could not confer eligibility—"gene expression data" and "biologic data." Order at 24. The data from these alleged examples are similarly limited to, for example, "biologic data" (cardiac pulse information or animal traits), or "gene expression data" (soybean phenotypes), and they do not change the result. In short, because HDC's exemplary uses are merely additional environments in which to use the abstract SVM-RFE idea, they are irrelevant to eligibility. Just as the Court could not "discern any … allegations capable of" conferring patent-eligibility in HDC's Original Complaint, HDC's allegations in its second Complaint yield the same result. Order at 24. If anything, HDC's assertions that the alleged invention (SVM-RFE) could theoretically be applied in a variety of unclaimed ways show that it has claimed nothing more than an abstract idea, not the use of that concept in a patentable invention.

Finally, HDC's Complaint touts the "powerful," "efficient[]," "important," "novel" nature of SVM-RFE. Complaint, ¶¶ 32, 39–41, 45–46. But additional descriptors cannot save these claims: Even the most innovative, novel ideas are not patent eligible if the claims are merely directed to an abstract idea. Order at 23–24 ("a mathematical idea can be novel and even a 'groundbreaking' advance and still not be patent eligible"); *see also SAP*, 898 F.3d at 1170; *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (explaining that Albert Einstein could not have patented his "celebrated" $E=mc^2$ equation). And as the Court held, a mere improvement in data quality or processing speed is not a patent-eligible inventive concept. Order at 23–24; *see also Stanford II*, 991 F.3d at 1252 ("That a specific or different combination of mathematical steps

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yields more accurate [data] than previously achievable under the prior art is not enough to transform the abstract idea in claim 1 into a patent eligible application."); *see also Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014) ("Without additional limitations, a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible."). Furthermore, the "novel" features that HDC describes in its Complaint are simply an explanation of the abstract idea of SVM-RFE, which cannot provide the inventive concept. *See Simio*, 983 F.3d at 1364; *BSG Tech*, 899 F.3d at 1290. Therefore, HDC's claims remain ineligible for patenting under § 101.

V.   CONCLUSION

For the foregoing reasons, Intel respectfully requests that the Court grant Intel's Motion for Judgment on the Pleadings, hold the claims invalid under § 101, and enter final judgment in favor of Intel.

Dated: August 9, 2022   **PERKINS COIE LLP**

                                                   /s/ Sarah E. Piepmeier
                                                   Sarah E. Piepmeier, *admitted*
                                                   (CA Bar No. 227094)
                                                   SPiepmeier@perkinscoie.com
                                                   PERKINS COIE LLP
                                                   505 Howard Street, Suite 1000
                                                   San Francisco, CA 94105
                                                   Tel: (415) 344-7000
                                                   Fax: (415) 344-7050

                                                   Kourtney Mueller Merrill, *admitted*
                                                   (CO Bar No. 36662)
                                                   KMerrill@perkinscoie.com
                                                   PERKINS COIE LLP
                                                   1900 Sixteenth Street, Suite 1400,
                                                   Denver, CO 80202-5255
                                                   Tel: (303) 291-2388
                                                   Fax: (303) 291-2488

Jose C. Villarreal (TX Bar No. 24003113)
JVillarreal@perkinscoie.com
PERKINS COIE LLP
500 W. 2nd Street, Suite 1900
Austin, TX 78701
Tel: (737) 256-6100
Fax: (737) 256-6300

Attorneys for Defendant Intel Corporation

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<u>CERTIFICATE OF SERVICE</u>

I hereby certify that, on August 9, 2022, I electronically filed the foregoing with the Clerk

of Court using the CM/ECF system, which will send notification of such filing to all counsel of

record.

/s/ Sarah E. Piepmeier